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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/049,509	06/07/2002	Hidetoshi Yokota	Q68269	4003

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EXAMINER

MCCALL, ERIC SCOTT

ART UNIT PAPER NUMBER

2855

DATE MAILED: 05/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/049,509	YOKOTA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Eric S. McCall	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 19-24 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6, 7, 16-18 and 25-39 is/are allowed.
- 6) ☒ Claim(s) 1, 3-5 and 8-11 is/are rejected.
- 7) ☒ Claim(s) 2 and 12-15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**VEHICLE RUNNING STATE ESTIMATION**  
**METHOD AND APPARATUS, VEHICLE**  
**CONTROL APPARATUS AND TIRE WHEEL**

**FINAL OFFICE ACTION**

In response to the Applicant's amendment dated March 16, 2004.

**NON-ELECTED CLAIMS**

This application contains claims drawn to an invention nonelected without traverse. A complete reply to the final rejection must include cancellation of the nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

**PRIORITY**

Receipt is acknowledged of the Applicant's priority papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

**ABSTRACT**

In response to the Applicant's amendments, the objection to the abstract as set forth in the previous office action has been overcome.

**CLAIMS**

**35 U.S.C. § 112**

In response to the Applicant's amendments to the claims, the rejection of claims 1-18 and 25-39 under 35 USC 112, second paragraph, as set forth in the previous office action has been overcome.

**35 U.S.C. § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-5, and 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Hodges, Sr. et al. (5,065,618).

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The below is with respect to the specific claims as addressed by the Applicant in said amendment. For the claims rejected above and not discussed below, the Applicant's attention is directed to the previous office action.

With respect to claim 1, Hodges teaches a vehicle running state estimation method comprising:

detecting a vibration level of a portion below a spring of a running vehicle (col. 13, lines 13-15); and

estimating the running state of the vehicle by determining at least one of a condition of a road surface on which the vehicle is running and a running state of each tire (col. 13, lines 16-20),

wherein said determining is based on the detected vibration level.

With respect to claim 8, Hodges teaches a vehicle running state estimation apparatus comprising:

means of detecting a vibration level of a portion below a spring of a running vehicle (col. 13, lines 13-15);

means of calculating a vibration level at a predetermined frequency band by analyzing frequency of the detected vibration level (col. 12, lines 29-68); and

road surface condition estimation means for estimating the condition of the road surface

high the vehicle is running from the calculated vibration level (col. 13, lines 16-20)

wherein the running state of the vehicle (ie. the acceleration of the wheel hubs) is estimated based on the condition of the road surface received from the road surface condition estimation means (col. 13, lines 13-20).

With respect to claim 9, Hodges teaches a vehicle running state estimation apparatus comprising:

means of detecting a vibration level of a portion below a spring of a running vehicle (col. 13, lines 13-15); and

road surface condition estimation means for estimating condition of a road surface (col. 13, lines 16-20) from a value obtained by carrying out an operation on at least two vibration levels at different frequency bands by analyzing the frequency of the detected vibration level (col. 12, lines 29-68),

wherein the running state of the vehicle (ie. the acceleration of the wheel hubs) is estimated based on the condition of the road surface received from the road surface condition estimation means (col. 13, lines 13-20).

With respect to claim 10, Hodges teaches a vehicle running state estimation apparatus for estimating a running state of a vehicle based on a condition of a road surface comprising:

means of detecting vibration levels of at least two points on a portion below a spring of the running vehicle (col. 13, lines 13-15);

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means of calculating a vibration transmission level at a predetermined frequency band between said at least two vibration detection points; and

road surface condition estimation means for estimating the condition of the road surface (col. 13, lines 13-20) on which the vehicle is running from the calculated vibration transmission level.

Response to Arguments

The Applicant's arguments have been considered but have not been found to be persuasive.

With regards to claim 1, the Applicant has argued that the prior art is directed to measuring a road surface and not to estimating the running state of a vehicle.

However, the Examiner contends that the fact that the prior art measures the acceleration of each wheel hub which accelerates (ie. vibrates) due to the condition of the road surface is in fact "estimating the running state of the vehicle by determining the condition of the road surface" as claimed.

The Examiner points out that the Applicant has chosen to set forth claim 1 in a very broad manner in that the phrase "the running state of the vehicle" is very broad and does not specifically set forth what type of "running state" is desired. As such, the acceleration of a wheel

set forth in the prior art is deemed as a "running state of a vehicle" as the Applicant has

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claimed. Since the prior art determines such a running state based on the condition of a road surface, the prior art does in fact teach the Applicant's claim 1.

With regards to claim 8, the Applicant argues that the prior art fails to teach a "means for calculating a vibration level at a predetermined frequency band by analyzing the frequency of the detected vibration level" because, although the prior art uses all frequencies as recognized by the Applicant, the prior art fails to teach a predetermined frequency band.

However, the Examiner points out that since the prior art, at a minimum, teaches all frequencies as recognized by the Applicant, the prior art does teach a predetermined frequency band as claimed because the Applicant has only claimed the broad phrase of "a predetermined frequency band" and has never claimed the limits of said frequency band.

With regards to claim 9, the Applicant has argued that the prior art fails to teach carrying out an operation on at least two vibration levels at different frequency bands.

However, the Examiner contends that the prior art does suggest such because the prior art sets forth that each wheel hub of the vehicle has the acceleration (ie. vibration) thereof measured in order to determine the profile of a road, and since the road profiles as suggested by the prior art are of irregular surfaces, each wheel hub is going to vibrate in different frequency bands. As such, the prior art is deemed as suggesting the Applicant's claimed subject matter.

Furthermore, the Examiner contends that if each wheel hub operated in the same frequency band, the road profile would always be seen as smooth and flat which is unrealistic.



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With regards to claim 10, the Applicant has argued that the prior art fails to teach a means for calculating a vibration transmission level at a predetermined frequency band between said at least two vibration detection points.

However, the Examiner points out that the prior art teaches calculating a vibration level of one wheel hub, ie. one point, (with respect to the ground) and the vibration level of another wheel hub, ie. a second point, (with respect to the ground). These vibration levels are deemed as vibration transmission levels as broadly claimed because the Applicant has not specifically claimed that the vibration transmission levels can not be interpreted as such.

Allowable Subject Matter

Claims 2 and 12-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 6, 7, 16-18, 25-39 have been found to be allowable over the prior art.

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**CONCLUSION**

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication should be directed to Eric S. McCall at telephone number (571) 272-2183.

  
Eric S. McCall  
Primary Examiner  
Art Unit 2855  
May 26, 2004